

power 74; and by his daughter and chief assistant, Miss E. Isis Pogson, with the Lerebours & Secretans' Equatoreal, power 63. The former used a mean-time chronometer; the latter a sidereal clock. All the disappearances at the Moon's dark limb were sudden and satisfactory, but an error of ten seconds, due to miscounting, appears to have been made by one of the Observers in the case of *Maia*. The Moon set at 15^h 3^m, and the sky being hazy near the horizon, the reappearances were very uncertain, especially that of *Alcyone*, which was certainly not noted by N. R. P. until much too late. The broad hyperbolic boundary of the nebulosity in the south-west of the *Pleiades* is always easily traceable here with the Lerebours' Equatoreal, and the contrast between the greyish-white sky-ground around and *s p* of *Merope* with the deep blue background near *Alcyone* is very striking on a fine moonless night. In the absence of moonlight, besides the six well-known and conspicuous stars, *Celæno*, the combined light of *Asterope* and 22 *Tauri* as one object, and *Pleione*, distinct from *Atlas*, are all clearly discernible to any tolerably good unaided sight which is up to seeing *Uranus*, *Vesta* in opposition, 13 *Messier* in *Hercules*, or separating 4 and 5 *Lyrae* without optical aid.

Micrometer-Measures of Saturn's Satellites, made at the Royal Observatory, Greenwich, in the year 1875.

(Communicated by the Astronomer Royal.)

The observations were made with the Great Equatoreal, using a power of 285 applied to the Position Micrometer. The measures of distance are the means of the distances from the satellite to the near and distant limbs of *Saturn*, two moveable webs being brought simultaneously on the satellite and on each limb of *Saturn* alternately; the position-angles prior to September 21 are the means of those found by making a fixed web (at right angles to the other), bisect the satellite, and touch the limb of *Saturn* on the two sides alternately. On September 21 two webs were inserted parallel to the fixed web, and at such a distance apart that the two new webs could be made to touch the limbs of *Saturn* at the same time that the middle web bisected the satellite; each of the position-angles given is the mean of those found in reversed positions of the micrometer, and is measured from the N. point in the direction N.E.S.W. The observations were usually made with the illuminated wires in a dark field.

The initials W. C., M., and J., are those of Messrs. Christie, Maunder and Jenkins.

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	Greenwich Sidereal Time of Obs. of Distance.	Observed Distance.	Greenwich Sidereal Time of Obs. of Position-Angle.	Observed Position- Angle.	Observer.
<i>Japetus.</i>					
1875. Sept. 14	h m s 20 45 45	' '' 50 3 11'50	h m s 20 54 30	° ' 49 94 49	W. C.
17	20 37 40	1 8'19	20 49 45	106 42	J.
"	22 31 40	1 4'18	22 37 25	109 13	
20	20 17 10	1 5'25	20 24 50	252 41	W. C.
29	20 58 5	6 31'9S	21 3 20	268 7	M.
"	21 15 55	6 34'70			
Oct. 2	22 1 10	7 51'73	21 30 15	269 22	J.
5	21 52 15	8 36'44	22 20 40	269 41	"
"	22 41 45	8 37'34			
6	20 22 40	8 45'43	21 10 15	270 20	"
"	21 14 20	8 46'94			
11	21 42 45	8 55'14	21 48 15	270 50	M.
"	22 0 25	8 50'14			
12	21 49 20	8 39'13	21 49 56	270 41	W. C.
"	22 0 55	8 40'41			
16	20 49 5	7 32'46	20 58 25	271 53	J.
"	20 58 45	7 34'02			
21	21 42 35	5 6'68	21 44 35	273 45	"
25	21 37 0	2 38'90	21 54 50	277 26	
"	21 53 40	2 38'54			
Nov. 4	21 47 10	3 59'48	22 0 15	86 23	"
"	21 59 15	4 2'85			
8	22 18 55	5 29'83	22 26 20	85 38	"
"	22 25 50	5 30'02			

<i>Titan.</i>					
Sept. 14	19 39 45	2 38'88	19 46 20	105 54	W. C.
"	19 53 15	2 37'21	19 58 35	105 49	
15	21 31 25	1 45'41	21 37 30	119 17	J.
"	22 26 15	1 45'26	22 30 45	118 23	
17	19 53 15	56'21	19 56 5	224 44	"
"	21 56 50	59'95	21 59 50	230 32	
18	21 24 10	1 53'18	21 31 10	257 30	W. C.
20	21 0 5	2 59'37	20 55 20	273 58	"
27			21 15 50	89 38	M.

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	Greenwich Sidereal Time of Obs. of Distance. h m s	Observed Distance. ' "	Greenwich Sidereal Time of Obs. of Position-Angle. h m s	Observed Position- Angle. °	Observer.
1875.					
Sept. 28	22 2 10	3 8'42			
29	20 24 55	3 3'95	20 36 5	100 18	M.
"	20 47 50	3 3'13			
30	20 33 55	2 33'51	20 46 25	106 35	J.
"	20 48 25	2 32'68			
Oct. 2	20 33 0	55'59	21 14 10	152 47	"
"	21 49 50	52'20			
5	21 35 0	2 34'75	21 59 50	269 24	"
"	22 15 15	2 38'83			
6	20 15 25	2 55'93	20 41 5	275 22	"
"	20 59 40	2 56'25			
11	21 27 35	1 12'73	22 0 15	68 33	M.
"	22 35 20	1 16'23			
12	21 5 0	2 4'86	21 51 45	81 22	W. C.
"	22 41 55	2 8'75			
16	21 42 40	2 27'02	21 49 10	108 0	J.
"	21 49 10	2 28'28			
21	21 36 45	2 32'12	21 38 50	268 32	"
25	20 57 35	1 28'33	21 3 45	302 11	
"	21 4 0	1 28'03			"
Nov. 4	21 22 10	58'70	21 30 55	229 41	
"	21 30 25	58'95			"
8	21 42 10	2 41'42	21 57 40	80 53	
"	22 6 5	2 42'40			M.
15	21 28 30	2 55'83	21 38 5	95 46	
"	21 51 35	2 33'01			

Rhea.

Sept. 14	20 10 5	46'29	20 20 30	76 18	W. C.
"	22 47 0	55'22	22 37 0	79 34	
15	21 20 15	1 14'01	21 25 35	102 40	J.
"	22 13 5	1 11'68	22 19 40	101 49	
17	19 40 20	1 21'71	19 45 30	275 24	"
"	21 45 20	1 23'06	21 50 0	278 49	
18	21 3 40	21'45	21 16 0	340 48	W. C.
20	20 49 0	42'15	20 43 55	119 53	"
27			20 49 5	326 30	M.
28	21 55 10	1 16'02	21 18 20	60 22	

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1875.	Greenwich Sidereal Time of Obs. of Distance. h m s	Observed Distance.	Greenwich Sidereal Time of Obs. of Position-Angle. h m s	Observed Position- Angle. ° ' "	Observer.
Sept. 29	20 16 30	48°21	20 30 45	116 5	M.
"	20 39 10	49°53			
30	21 49 55	1 2°34	21 55 20	263 56	J.
Oct. 2	20 18 5	36°04	21 2 45	70 18	"
"	21 39 45	41°78			
5	21 28 50	1 17°97	21 52 30	274 21	"
"	22 8 55	1 19°48			
6	20 6 15	22°16	20 32 45	313 32	"
"	20 51 5	29°00			
11	21 12 10	34°32	21 49 30	69 24	M.
"	22 30 5	39°09			
12	21 12 30	1 16°49	21 48 50	99 45	W. C.
"	22 28 40	1 15°75			
16	20 23 40	1 5°51	20 31 30	86 45	J.
"	20 37 10	1 7°35			
21	21 31 25	1 17°25	21 33 35	97 56	"
25	20 44 35	1 3°07	20 50 45	85 32	
"	20 51 5	1 3°08			"
Nov. 4	21 35 55	57°07	21 40 35	107 54	"
"	21 41 5	57°58			
8	21 47 25	2 13°59	21 56 45	95 0	"
"	21 56 50	1 55°24			
15	21 37 10	1 10°75	21 46 55	285 4	M.
"	21 59 45	1 11°07			

Dione.

Sept. 14	21 6 55	24°98	21 13 25	120 30	W. C.
"	22 31 0	23°02	22 22 0	129 11	
17	21 10 5	14°98	21 18 55	167 24	J.
18	21 40 5	38°83	21 50 55	292 58	W. C.
20	20 34 40	54°78	20 28 30	259 7	"
29	21 59 0	35°84	22 2 45	294 15	
"	22 5 25	33°63			M.
30	21 14 20	56°19	21 35 20	97 13	J.
"	21 33 50	56°05			
Oct. 5	21 43 0	30°61	22 10 30	78 28	"
"	22 27 45	33°30			

		Greenwich Sidereal Time of Obs. of Distance. h m s	Observed Distance. "	Greenwich Sidereal Time of Obs. of Position-Angle. h m s	Observed Position- Angle. o /	Observer.
1875.						
Oct.	6	20 39 30	26'90	21 10 30	120 57	J.
	"	21 35 55	23'67			
	11	21 6 10	54'12	21 40 20	98 24	M.
	"	22 22 50	57'32			
	12	21 34 25	42'54	21 50 55	265 29	W. C.
	"	22 12 0	45'43			
	16	21 14 10	32'44	21 25 10	77 56	J.
	"	21 27 0	33'16			
	21	21 50 40	32'62	21 53 55	299 55	"
	25	21 12 20	43'28	21 20 55	93 49	"
	"	21 21 25	44'28			

Tethys.

Sept.	14	21 21 40	22'38	21 29 30	254 51	W. C.
	"	21 47 45	23'92	21 39 45	255 5	
	17	20 4 45	33'37	20 10 15	85 27	J.
	"	22 8 40	39'14	22 13 40	90 14	
	18	22 3 40	24'36	22 16 10	272 38	W. C.
	20	20 0 25	44'88	20 9 15	273 23	
	"	20 4 55	47'48			"
Oct.	2	21 19 40	23'08	21 23 0	68 54	J.
	5	21 22 0	39'53	21 46 20	270 51	"
	"	22 1 20	40'99			
	6	20 30 50	41'99	21 1 40	90 32	"
	"	21 27 30	43'13			
	11	21 18 45	39'32	21 42 50	286 13	M.
	"	22 11 50	37'50			
	12	21 21 45	33'55	21 20 0	107 14	W. C.
	21	21 25 20	32'17	21 50 35	85 10	
	"	22 4 5	30'24			J.
	25	22 12 25	38'77	22 21 30	111 13	"
	"	22 20 25	39'36			
Nov.	8	21 37 15	33'16	22 39 25	266 17	"
	"	21 42 10	36'40			
	15	22 45 45	29'91	22 46 15	110 12	M.
	"	22 51 0	27'58			

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Notes.

- September 14. *Saturn* was very tremulous and diffused at times. *Iapetus*, *Dione*, and *Tethys* were very faint, and were observed in a slightly illuminated field. The belt of *Saturn* was very conspicuous, but the colour was scarcely so marked as when seen a week previously. The curvature of the shadow of the ball on the ring was very well seen, the definition being occasionally very good.
- September 15 and 17. The measures were made with great difficulty.
- September 18. Sky very hazy; the observations were difficult, but the definition of the planet was very good for a few moments at a time. The belt was again very conspicuous and reddish, and the planet appeared brighter than the ring where it crossed the ball. The shadow on the ring was curved as on September 14.
- September 20. Sky rather hazy.
- September 28. *Saturn* very tremulous.
- September 29. *Dione* was exceedingly faint and difficult to measure, and was only seen at long intervals. All the observations were made with the wires illuminated on a dark field. *Saturn* was occasionally well defined, but in general the limbs were diffused.
- September 30. The planet tremulous.
- October 2. At the first observation of *Titan* the image of *Saturn* was . tremulous, otherwise it was very good.
- October 5. The planet tremulous at the second observation of *Titan*; *Dione* very faint.
- October 6. *Dione* and *Tethys* very faint.
- October 16. The first measures of *Titan*, *Rhea*, and *Dione* were made under favourable circumstances; but before the second series of measures the limbs of *Saturn* became very tremulous, and *Tethys*, especially, was difficult to measure owing to its faintness.
- October 12. *Iapetus*, *Dione*, and *Tethys* faint. The illuminated wires on a dark field were used throughout the observations.
- October 16. *Saturn* very tremulous; *Dione* very faint.
- October 17. *Dione* very faint; the image of the planet good.
- October 25. Sky rather misty; *Dione* and *Tethys* were very faint, and the planet's limbs much diffused.
- November 4. Sky rather hazy; *Iapetus* faint.
- November 8. *Iapetus* and *Tethys* faint; *Titan* and *Rhea* observed through thin cloud.
- November 15. *Tethys* very faint; *Saturn* also was faint, but free from tremor in the first series of measures. In the second series the planet was diffused and tremulous.